Elizabeth Southerland/DC/USEPA/US

11/28/2005 03:58 PM

To Mike Cook/DC/USEPA/US@EPA, Beverly Banister/R4/USEPA/US@EPA

cc Stuart Walker/DC/USEPA/US@EPA, David Lopez/DC/USEPA/US@EPA, JoAnn Griffith/DC/USEPA/US@EPA

bcc

Subject Fw: Recommended Approach for Phosphate Mine Area of Florida

Here's a summary of all the different rad cleanup numbers that could be considered for the Florida phosphate mine area. If you have any questions on this, please get back to me.

----- Forwarded by Elizabeth Southerland/DC/USEPA/US on 11/28/2005 03:54 PM -----

Stuart Walker/DC/USEPA/US

11/23/2005 07:11 PM

To Elizabeth Southerland/DC/USEPA/US@EPA

cc David Lopez/DC/USEPA/US@EPA, JoAnn Griffith/DC/USEPA/US@EPA, RobinM Anderson/DC/USEPA/US@EPA

Subject Re: Fw: Re: Fw: Recommended Approach for Phosphate Mine Area of Florida

Here is the revised version of the one-pager.

phospate1pager.wpd

1.

Florida Phosphate: Radium and Yucca Issues

(mrem, risk, and pCi/g values are above background)

Radium soil cleanup in residential land use

NCRP Report 116. This national advisory body recommends actions to protect few individuals above 500 mrem/yr (approximately a 1 x 10^{-2} cancer risk) and 100 mrem/yr (approximately a 2 x10^{-3} cancer risk) for larger populations. This dose recommendation corresponds to significantly different concentrations when interpreted by Florida and ATSDR.

Florida DOH interpretation of NCRP 116. Take action when radium levels correspond to greater than 500 mrem/yr (85 pCi/g, approximately a 7 x 10^{-3} cancer risk). EPA is unsure if this would be the cleanup level. Education and possible action by homeowner between 500 and 100 mrem/yr (17 pCi/g, approximately a 1 x 10^{-3} cancer risk). Below 100 mrem/yr no action. Soil concentrations are based on a previous run by Florida using DOE RESRAD model which Florida indicated they would employ at the phosphate sites.

ATSDR interpetation of NCRP 116. ATSDR would use 100 mrem/yr recommendation for Florida phosphate site (0.7 pCi/g approximately a 5 x 10^{-5} cancer risk). Soil concentrations are based on Screening Levels in NCRP 129 which ATSDR indicated they would use in November 2004 meeting with U.S. EPA and Florida and emails with EPA. ATSDR values include risk consideration from radon intrusion into homes. ATSDR staff have indicated in email that at sites with radium fixed in cement or in subsurface soil, they have recommended 100 mrem/yr (approximately a cancer risk of 2 x 10^{-3}), but based on a site-specific assessment to determine concentration levels.

EPA. EPA's cleanup level has been 5 pCi/g of radium 226 (approximately a 4 x 10^{-4} cancer risk). Uranium Mill Tailings Radiation Control Act (UMTRCA) soil standard (40 CFR 192.12(a)) is routinely applied as an ARAR. UMTRCA standard is 5 pCi/g from surface to 15 cm below surface; 15 pCi/g for each increment of 15 cm below surface. OSWER Directive 9200.4-25 explains how subsurface level of 15 pCi/g is RAR only when it will result in cleanup of 5 pCi/g or less in the subsurface.

Potential of Yucca Mountain Standard as Cleanup Standard

EPA proposal to retain a standard of 15 mrem/yr for the first 10,000 years after opening of the disposal standard and a new standard of 350 mrem/yr (approximately 7 x 10^{-3}) after 10,000 years up to 1 million years. It is highly unlikely that either Yucca standard would be an ARAR if phosphate mine was a CERCLA site.

1. Yucca is a site-specific standard so it would not be applicable at other locations.
2. Yucca is a site-specific standard for a location that bears no hydro geologic similarity to Central Florida so it would not be relevant and appropriate (RAR).
3. Yucca is a disposal standard so it is not RAR for residential cleanups.
4. Yucca Mountain dose limits apply # kilometers from the disposal cell, so standard would

not be RAR for contamination in or close to occupied areas.

5. Yucca is for high-level waste, not NORM.
6. 350 mrem/yr standard is proposed, so it could not be an ARAR at any site.
7. 350 mrem/yr is outside the risk range so it should not be selected as a TBC.
8. 350 mrem/yr is in terms of dose, so it should not be selected as a TBC.

It is likely that 350 mrem/yr would only be relevant and appropriate for a high-level waste deep geologic disposal system when modeling exposures after 10,000 years in an area that resembles Yucca Mountain, both from a hydro geologic sense and significant buffer zones from the populace.

Beverly Banister/R4/USEPA/US

11/30/2005 08:20 PM

To Randall Chaffins/R4/USEPA/US, Brad Jackson/R4/USEPA/US, Scott Sudweeks/R4/USEPA/US,

cc

bcc

Subject Fw: Recommended Approach for Phosphate Mine Area of Florida

FYI

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